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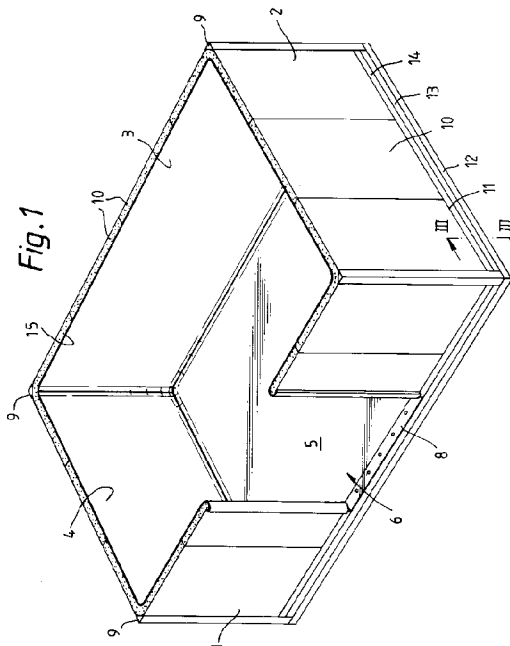
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(54) **Padded room and method of construction thereof.**

(57) A padded room for a veterinary hospital or the like comprises a foam layer (10) bonded to the walls and floor of the room and a polyurethane coating (15) spray-coated in situ onto the foam sheets to form a continuous skin. For formulation of the polyurethane coating provides a tough semi-rigid skin which, when bonded to the foam rubber, is able to withstand the substantial forces associated with use of the room by shod horses.



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This invention relates to a padded room, and to a method for forming such a room.

Veterinary treatment, particularly of larger animals such as horses and the like, may require the provision of special rooms for the anaesthetisation of, operation on, and recovery of these animals. The rooms are padded to reduce the risks of injury to the animals and, in particular, to provide protection should an animal fall whilst recovering from an operation.

One known method of forming such a room is to use preformed, plastic or rubber covered foam panels or pads. These panels were laid to cover the floor and walls of the room and fixed in place, and the joins between the panels were sealed with mastic. However, in known constructions the mastic joints could fail allowing water, urine, blood and so on to collect beneath the panels, creating a build up of bacteria and causing hygiene problems. In addition, the plastic covering of the known pads could be torn, such that the foam could become impregnated with water, urine, blood etc., causing further hygiene problems.

The present invention aims to provide a padded room for use in an animal hospital, or the like, which is completely without seams or joints. Such a seamless room provides a clinically hygienic, easily cleaned surface.

According to one aspect of the present invention there is provided a padded room comprising rigid walls and floor; a layer of foam fixed to at least part of the walls and floor; and a continuous flexible coating forming the interior surface of at least part of the room, the continuous coating being formed in situ by spray coating the surface of the foam and being bonded to the foam to form an integral structure therewith.

According to another aspect of the present invention there is provided a method of forming a padded room comprising the steps of:

- a) fixing a foam layer to at least part of the interior of the room; and
- b) spraying a flexible coating over the foam layer to bond to the foam layer and form a completely seamless inner surface for said at least part of the interior of the room.

Preferably, the foam layer is fixed to the floor and walls of the room.

Advantageously, the method additionally comprises the steps of cleaning and priming the walls and floor prior to adhesively fixing the foam layer to them.

The foam layer on the floor is preferably twice the thickness of the foam layer on the walls.

In a particularly preferred embodiment of the invention the foam is pre-formed in sheets of a given thickness and a single thickness of such sheet foam material is applied to the walls whilst a double thickness of the sheet material is applied to the floor.

In a particularly preferred embodiment of the invention the foam layer is a natural rubber foam having one surface thereof appropriate treated to ensure

adequate bonding of the spray coating to the foam layer. Preferably, when the foam layer is formed by sheets of foam material those sheets are pre-treated to provide a surface which provides the necessary bonding characteristics for the spray coating without application of a primer. For example, the sheet foam material may have one surface provided with a nitrile/PVC coating which provides the necessary bonding characteristics for a two-part polyurethane spray coating. In the alternative, after the foam has been positioned within the room and secured in place a primer, for example a polymeric/resin blend primer, may be applied to the exposed surface of the foam prior to application of the spray coating.

In a particularly preferred embodiment, the coating comprises a two part polyurethane, and the components of the coating are preferably mixed as the coating is sprayed.

The invention will now be described in more detail with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of a padded room in accordance with the present invention;

Figure 2 is a plan view of the room of Figure 1; and
Figure 3 is a detailed view of a corner section taken at III in Figure 1.

The room shown in Figures 1 and 2 comprises walls 1, 2, 3 and 4 and a floor 5. A doorway 6 is formed in one wall 1 and may be fitted with a door or doors 7 as shown in Figure 2. The floor and walls may be of any suitable material such as concrete, wood or brick. A metal strip 8 may be fitted at the doorway threshold, and is preferably made of steel or aluminium.

In order to create a hygienic padded room, the existing interior wall and floor surfaces are thoroughly cleaned and then primed with a concrete sealer or the like. By way of example, a suitable sealer/primer is a polymeric/resin primer.

Angled fillets 9 are fitted in the vertical corners of the room between each of the adjoining walls 1 to 4, such that the corner angles are softened to create a curved effect. These angled fillets are preferably made of wood, but may be of any other suitable material.

Adhesive is then applied to the primed walls and pre-formed foam sheets 10 are bonded to the walls (see Figure 3), the foam sheets having first preferably been primed on the side which is to be bonded to the walls. The sheets are preferably made from a natural rubber foam having a density of approximately 155 Kg/m³, the sheets being approximately 25mm thick, and are fitted to end a little way above the floor of the room (see joint 11 in Figure 3).

Adhesive is next applied to the floor and similar foam sheets 12 are then bonded to the floor, the foam sheets having first been primed on the side which is to be bonded to the floor. These sheets extend from wall to wall across the room.

Angled fillets 13, which are similar to angled fillets 9, are fitted in the horizontal corners of the room between the walls 1 to 4 and the floor 5 such that these corner angles are softened to create a curved effect.

The exposed top surface of the foam floor covering is then primed, and further similar foam sheets 14 are primed on one side and then bonded, primed side down, on top of the first floor covering such that the final foam floor covering is approximately twice the thickness of the foam wall covering. The further foam floor sheets are cut to extend around the horizontal corners of the room over the angled fillets 13 to abut the ends of the foam wall sheets at joint 11. Preferably, the further foam sheets are bonded to the first floor covering by applying adhesive to both the surfaces to be joined.

All the edge joints between the foam sheets on the walls and floor are then sealed.

The interior of the doors 7 may also be provided with a foam layer in a manner similar to that described above with respect to the walls 1 to 4.

The whole area of foam sheeting is then spray coated with a layer 15 of two part polyurethane by means of a metering machine. Preferably, the coating components are mixed in the nozzle of the metering machine as the coating is sprayed and the coating then sets very quickly over the foam sheeting. It is important that the coating provides a continuous skin to obviate the problem of joint failure associated with prior art structures. Also, it is important that the coating is sufficiently tough to withstand both the large weights associated with heavy animals and the high loading and abrasive characteristics that may be produced by shod animals, for example horses (which may weigh in the order of 1000Kg) having steel shoes. It has been found that a suitable coating may be formed by a blend of polyether/polyester polyols, a suitable inorganic filler and a catalyst which is formulated substantially solvent free to enable a relatively thick build up of material to be spray coated easily. In a particularly preferred embodiment of the invention the material is formulated to provide a gel time of approximately 30 seconds and is reacted with Polymeric Diphenylmethane 4-4' diisocyanate (MDI). It is also desirable for the coating to form a bond with the foam layer. To this end, in the preferred embodiment of the invention the foam layer is provided by pre-formed foam sheets each having a surface which is pre-treated to form a secure bond with the coating as the coating is sprayed in position. To this end, in the preferred embodiment the foam sheets are treated, on at least one surface thereof, to provide a nitrile/PVC surface layer to which the spray polyurethane coating can readily bond to form an integral structure. As an alternative, the exposed surface of the foam layers may be treated with a suitable primer (which may, for example, be the same primer as that applied to the walls

prior to adhesive bonding of the foam layer) immediately before the surface coating is sprayed in position.

The walls are sprayed with the coating just prior to the floor being sprayed, but the spraying operation is a continuous one such that a completely seamless covering surface is provided for the interior of the padded room.

Preferably, the coating 15 has a thickness of approximately 3mm on the walls and approximately 5mm on the floor of the room. The interior of the doors 7 may be spray coated at the same time as the walls. The coating 15 may be provided in various different colours.

The coating provides a flexible, tough, durable, seamless surface which can be used without the worry of seepage or contamination and which can be efficiently and hygienically cleaned.

Although the present invention has primarily been described with respect to the provision of padded rooms with seamless coatings for use in the veterinary treatment of animals, clearly such seamless coated foam sheeting may have many other uses in any number of fields, and the present application is not intended to be limited to any one particular use.

Claims

1. A padded room comprising rigid walls and floor; a layer of foam fixed to at least part of the walls and floor; and a continuous flexible coating forming the interior surface of at least part of the room, the continuous coating being formed in situ by spray coating the surface of the foam and being bonded to the foam to form an integral structure therewith.
2. A padded room according to Claim 1 wherein the foam layer is provided by pre-formed sheets of foam material which are adhesively bonded to the walls and/or the floor of the room.
3. A padded room according to Claim 2 wherein the floor of the room is coated with the plurality of thicknesses of said pre-formed sheet material.
4. A padded room according to any preceding claim wherein the foam layer is of foamed natural rubber.
5. A padded room according to any preceding claim wherein the sprayed coating is a polyurethane coating.
6. A padded room according to any preceding claim wherein the spray coating is bonded to the foam layer to provide an integral structure.

7. A padded room according to any preceding claim wherein the surface of the foam layer onto which the spray-coating is applied is treated to promote bonding of the sprayed coating to the foam layer. 5
8. According to any preceding claim wherein the foamed layer is a foamed natural rubber; the sprayed coating is a polyurethane coating; and the surface of the foamed rubber against which the sprayed coating is applied is pretreated to provide a nitrile/PVC skin to enhance bonding of the polyurethane coating to the natural rubber foam. 10
9. A method of forming a padded room comprising the steps of: 15
- a) fixing a foam layer to at least part of the interior of the room; and
 - b) spraying a flexible coating over the foam layer to bond to the foam layer and form a completely seamless inner surface for said at least part of the interior of the room. 20
10. A method according to Claim 9 wherein the coating comprises a polyurethane coating the components of which are mixed in a metering machine immediately prior to application. 25

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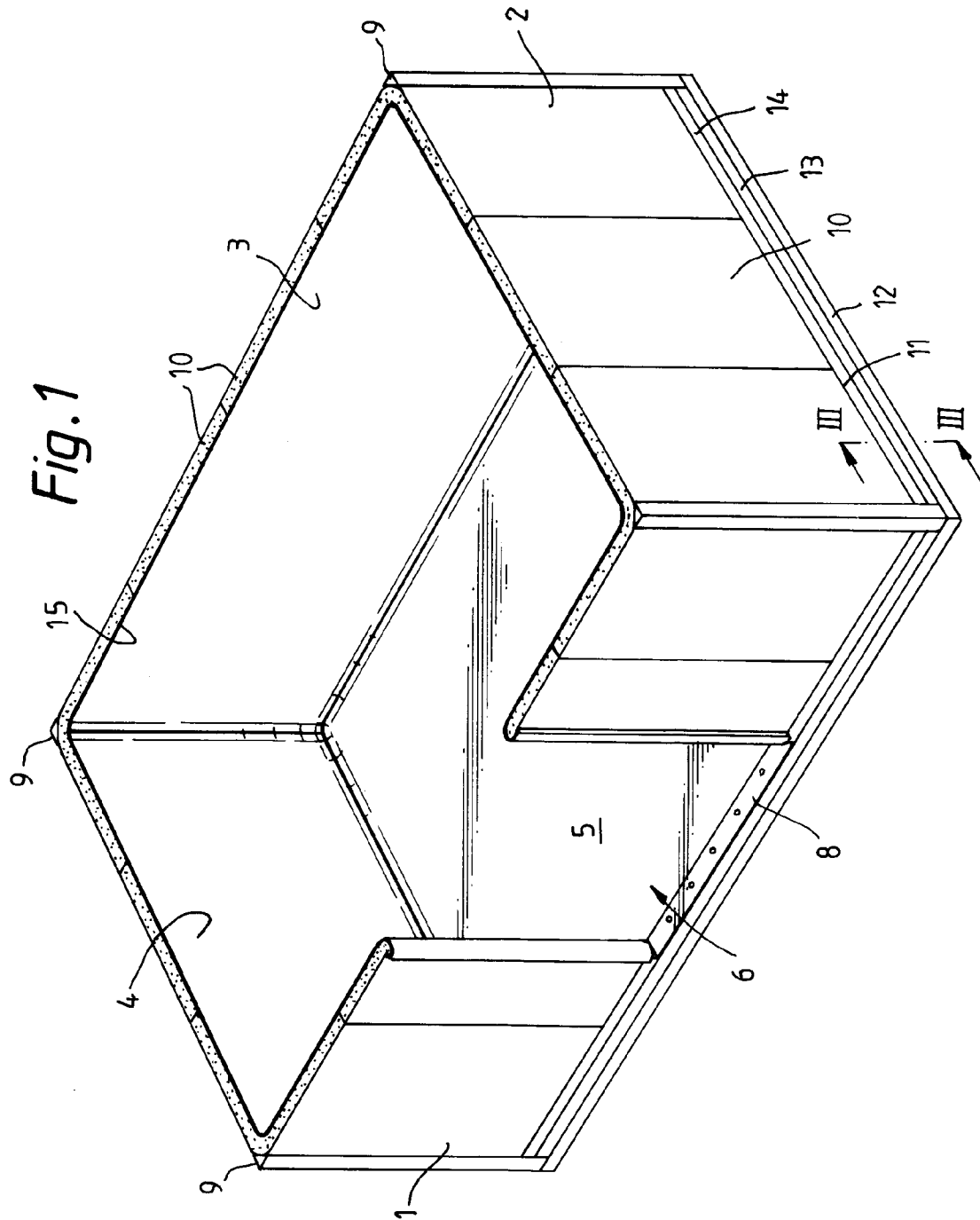
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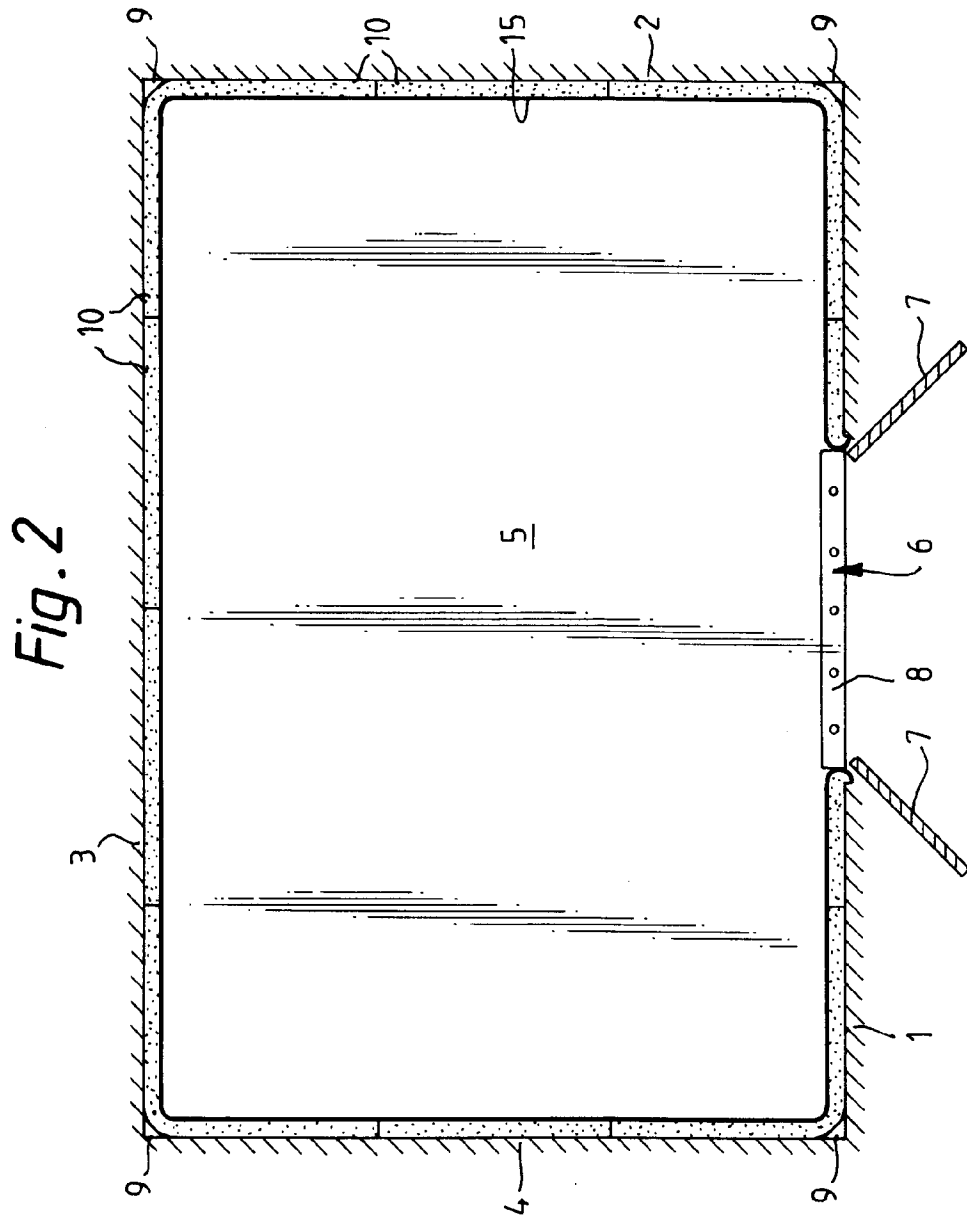
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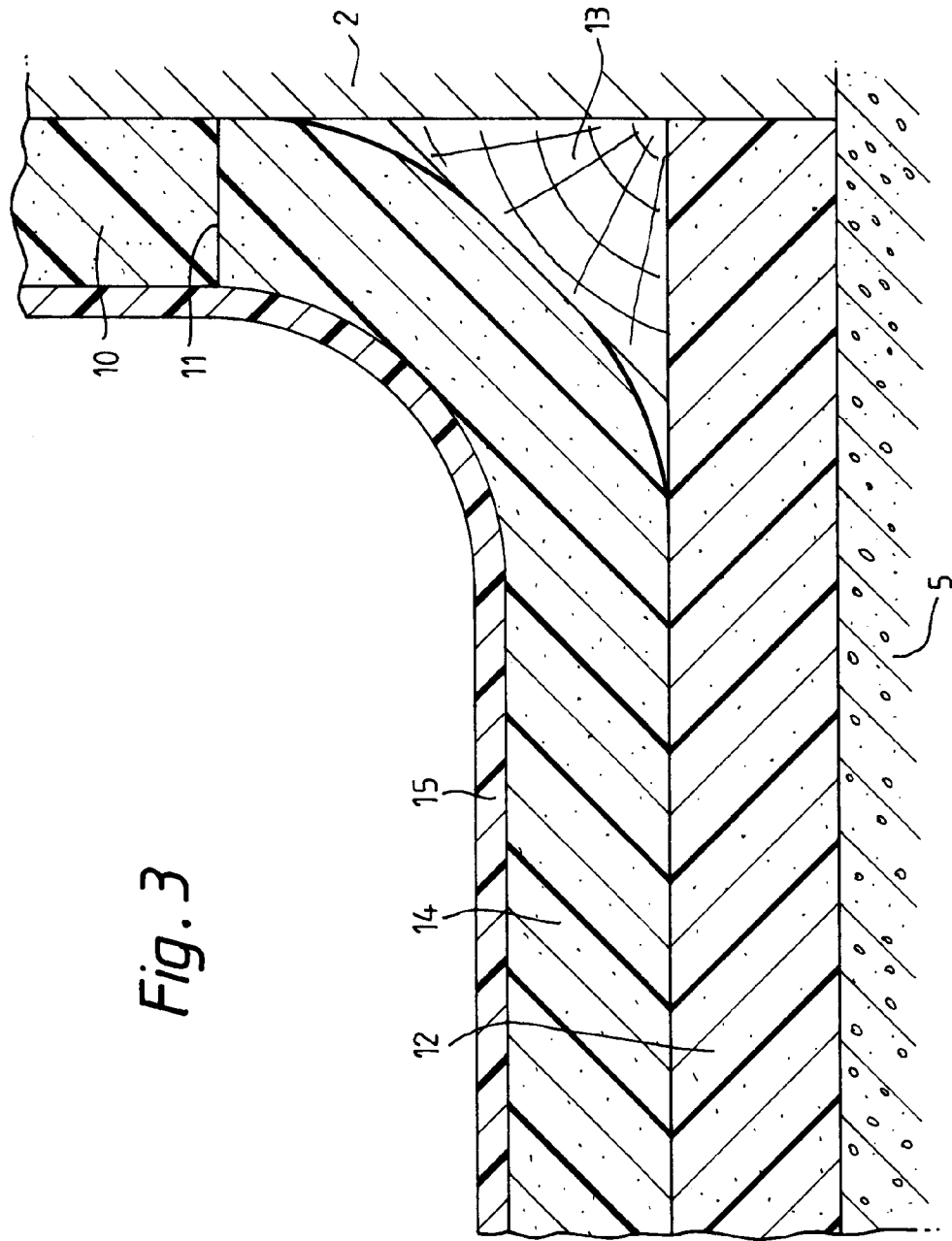


Fig. 3